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I Claim:

1. A method of making embedded, coupled, shaped waveguide resonators having conductive walls sandwiched between fired green tape stacks comprising

5 mounting a first green tape stack on a metal base support substrate;

punching openings in said green tape stack to form cavity walls and coupling apertures;

forming conductive metal layers over the openings and
10 walls;

mounting a second green tape stack over the conductive metal layers with a conductive ground plane layer therebetween, said second green tape having openings therein for insertion of E-plane probes;

15 screen printing microstrip transmission lines on the top surface of the second green tape stack so as to connect them with the E-plane probes;

aligning the green tape stacks; and

firing the resultant assembly to vitrify the glasses in
20 the green tapes.

2. A method according to claim 1 wherein the green tapes are made from two crystallizing glasses of the Mg-Al-Silicate type, and an organic vehicle.

3. A method according to claim 1 wherein the conductor ink
25 includes silver powder and silver flake and an organic vehicle.

4. An embedded coupled shaped dielectric waveguide resonator

gk

having conductive walls sandwiched between two fired green tape stacks, said first green tape stack having apertures therein of a predetermined size and location to provide varying degrees of coupling.

5 5. An embedded coupled waveguide resonator according to claim 4 wherein a second metal layer is screen printed onto a green tape layer adjacent to the conductive walls.

6. An embedded coupled waveguide resonator according to claim 4 wherein the shaped waveguide is rectangular.

10 7. An embedded dielectric waveguide according to claim 4 wherein E-plane probes are inserted through openings in said second green tape stack and connected to microstrip transmission lines on the surface of said green tape stack.

15 8. An embedded dielectric waveguide according to claim 4 which is able to be tuned to varying operating frequencies by incorporating green tapes having varying dielectric constant into the structure.

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